

## **Monitoring Plan for Red Rock/Lima Watershed**

### **Introduction**

The purpose of this resource monitoring plan is to measure the effectiveness of management changes, structural projects and vegetative treatments in meeting the goals and objectives developed for the Red Rock/Lima Watershed (RRLW). This plan has been designed to measure progress towards the realization of site specific objectives developed through an interdisciplinary approach to mitigate resource (land health) concerns identified during the RRLW Assessment process.

This plan will identify when, where and how new studies will be conducted, as well as the types of data that will be collected, how the data will be evaluated, and who will participate in the process. All monitoring methodologies are accepted BLM monitoring methodologies and are described in various BLM or Interagency Handbooks. In addition to this plan, all existing monitoring studies that are needed to measure progress towards goals and objectives will continue to be read on the same time schedule as new studies.

### **Site Specific Objectives**

There were three driving issues and three additional resource concerns identified during the RRLW Assessment and through public scoping. Other monitoring activities will include critical elements that may be affected by the proposed action. Site specific objectives have been developed for each issue and most resource concerns and/or critical elements analyzed in the RRLW Environmental Assessment (EA). The amount of change desired for each of the objectives will be determined once additional baseline data is gathered during the next two field seasons. The goal is to make measurable progress towards site specific objectives by 2017.

### **Issue #1 – Upland Health, Sagebrush Steppe Habitat and Associated Species**

The objectives for upland health, sagebrush steppe habitat and associated species are:

- Increase cover and frequency of native perennial herbaceous species where concerns were documented.
- Maintain residual herbaceous cover for ground nesting birds, specifically sage grouse.
- Manage big sagebrush communities in the Watershed so that at least 70% provide the vegetation composition and structure to sustain sage grouse populations and other sagebrush obligate species such as antelope and pygmy rabbits.
- Maintain 15-25% of taller sagebrush canopy cover (primarily big sagebrush subspecies), as applicable within site potential.
- Prevent spread of noxious and invasive species (e.g. cheatgrass) into and within the watershed and reduce or eradicate existing infestations.
- Reduce wildlife entanglement hazards within the RRLW.

Monitoring Activities to measure progress towards meeting Upland Health, Sagebrush Steppe Habitat and Associated Species objectives:

- Continue early detection, monitoring, and evaluation of noxious weeds treatments in cooperation Beaverhead County and other partners. In addition, a photo point will be established in Bell Canyon to monitor changes in the spotted knapweed infestation and one or more photo points may be established to monitor the existing leafy spurge infestations.
- Continue existing upland trend studies (Daubenmires) within the Red Rock/Lima Watershed, as applicable.
- Maintain winter use big game utilization studies to continue monitoring the habitat quality and determine if management of these areas is providing the seasonal habitat requirements of existing populations (or population objectives) of big game.

**Table 1. Site Specific Upland Objectives**

Allotment Name	Objective	Monitoring Methodologies
Allotment E	Increase frequency and cover of cool season perennial bunchgrasses to protect soil, allow for more efficient precipitation infiltration, provide cover and forage for wildlife species, and forage for authorized livestock.	- Daubenmire; - Quadrat (nested) Frequency - and/or photo points

**Table 2. Site Specific Objectives for Sagebrush Habitat**

Allotment Name	Objective	Monitoring Methodologies
Williams	Delineate seasonal habitats of sage grouse and habitats of pygmy rabbit.	Habitat Characterization Monitoring; This methodology may combine telemetry study* (radio collar and tracking of hens to identify nesting and brood-rearing habitats) with Line Intercept and Daubenmire plots to measure canopy cover of sagebrush and herbaceous understory.
Shoshone Cove	Maintain nesting canopy cover of 15–25% sagebrush on the majority of the area within two miles of leks.	
Cedar Creek	Maintain adequate herbaceous understory on the majority of the area within two miles of leks during nesting /early brood rearing (typically April through mid-June). The herbaceous understory objective is an average of 6 to 7 inches within site potential.	
Snowline		
Roe West		
Bell Canyon	Maintain brood rearing canopy cover of 15–25% sagebrush near riparian areas or wet meadows while maintaining available forbs in the wet meadows.	Forage utilization and herbaceous understory cover will be measured annually within time constraints of staff.
	Maintain or increase composition of highly nutritious forbs (i.e. composites and legumes) in nesting/early brood rearing habitat.	

**Issues #2 – Riparian, Wetland and Aquatic Habitat and Associated Species**

The objectives for riparian, wetland and aquatic habitat and associated species are:

- Restore, maintain or enhance native vegetation and hydrology to springs, seeps and wet meadows with emphasis on ecological function, biodiversity, and rare plant species and their habitats.
- Protect springs and spring brooks from excessive ungulate impact.
- Restore deciduous woody habitat types (aspen, willow) in riparian areas that have been invaded by conifer trees.
- Increase deep rooted riparian vegetation (sedges, willows) where decreased composition was documented.
- Restore stream dimension, pattern and profile to the natural range of variation where concerns were documented.
- Reduce sediment loads where uses on public lands are causing increased sediment (e.g. cattle loitering, road maintenance, etc).
- Maintain or enhance habitat for cold water fisheries in occupied streams within the watershed.
- Prevent spread of noxious and invasive species into and within the watershed and reduce or eradicate existing infestations.

Monitoring Activities to measure progress towards meeting Riparian, Wetland and Aquatic Habitat and Associated Species objectives:

- Continue early detection, monitoring, and evaluation of noxious weeds treatments in cooperation Beaverhead County and other partners.
- Continue monitoring existing riparian studies as applicable.
- Photos will be taken at each spring prior to and after development/redevelopment.

**Table 3. Site specific Riparian and Wetland Habitat and Associated Species Monitoring Objectives**

<b>Allotment Name</b>	<b>Stream and Stream Reach</b>	<b>Objective</b>	<b>Monitoring Methodology</b>
Bell Canyon	Spring/spring brook 900 Spring/spring brook 931 Spring/spring brook 985	Increase sedge composition along the greenline Increase willow and decrease invasive species along the greenline Improve streambank stability and channel morphology by reducing trampling impacts.	Greenline transect Woody browse transect (optional) Photo point(s) at each spring

## Appendix B

Allotment Name	Stream and Stream Reach	Objective	Monitoring Methodology
Cedar Creek	Spring Gulch 901	Increase sedge composition along the greenline Improve streambank stability and channel morphology by reducing trampling impacts.	Greenline transect and/or Photo point(s)
	Spring Gulch 925	Increase sedge composition along the greenline and willow composition along the upper part of the reach and the spring source. Improve streambank stability and channel morphology by reducing trampling impacts.	Greenline transect and/or Photo point(s)
Clark Canyon	Clark Canyon Cr EF 928	Increase woody riparian species and reduce conifers Improve channel morphology	Woody browse transect Cumulative width/depth ratio Photo point(s)
	Clark Canyon trib 986	Improve channel morphology Increase woody riparian species (aspen, willow) Increase active beaver dams	Woody browse transect Photo point(s) Count active beaver dams in drainage.
	Clark Canyon trib 930	Increase aspen and red-osier dogwood and decrease conifers Improve channel morphology	Woody browse transect Photo point(s)
Clark Canyon Isolated	Clark Canyon Creek 926	Increase riparian vegetation (sedges, willows, aspen) Decrease invasive species and juniper Improve streambank stability and channel morphology by reducing trampling impacts.	Greenline transect Cumulative width/depth ratio (optional) Photo point(s)
Ellis Peak	Morrison Creek 719 Morrison Creek trib. 718	Improve streambank stability and channel morphology by reducing trampling impacts. Increase willow composition along the greenline.	Cumulative width/depth ratio (optional) Greenline or Woody Browse transect Photo point(s)
	Law Creek 721 Law Creek 730 Law Creek trib. 731 Law Creek trib. 756 Law Creek trib. 757 Law Creek trib. 795 Law Creek trib. 796	Improve streambank stability and channel morphology by reducing trampling impacts. Increase sedge and willow composition along the greenline.	Cumulative width/depth ratio (optional) Greenline or Woody Browse transect Photo point(s)
Lima Peaks	Dutch Hollow 937	Improve streambank stability and channel morphology by reducing trampling impacts.	Cumulative width/depth ratio and/or photo point(s)

Allotment Name	Stream and Stream Reach	Objective	Monitoring Methodology
Little Sheep	Little Sheep Creek 915	Improve streambank stability and channel morphology by reducing trampling impacts. Increase sedge composition along the greenline	Cumulative width/depth ratio OR photo point(s) Greenline transect
Phalarope West	Junction Creek trib 933	Improve streambank stability and channel morphology Reduce spotted knapweed Clean-up historic landfill	Photo point(s)
Roe Isolated	Maurer trib. 987	Increase sedge and decrease invasive species along the greenline Improve streambank stability and channel morphology by reducing trampling impacts.	Photo point(s) Greenline transect (optional)
Snowline AMP	Dutch Hollow 906	Improve streambank stability and channel morphology by reducing trampling impacts. Increase willows, aspen, red osier dogwood	Cumulative width/depth ratio Greenline or woody browse regeneration transect Photo point(s)
Snowline Custodial	Junction Creek 941 Big Beaver Creek 946	Improve streambank stability and channel morphology	Photo point(s)

### Issue # 3: Forest and Woodland Health

The objectives for Forest and Woodland Health are:

- Reduce Douglas-fir encroachment into former sagebrush/grassland dominated communities (particularly common in mountain big sagebrush/Idaho fescue shrublands).
- Maintain/enhance existing aspen stands and promote successful regeneration of aspen.
- Promote plant and wildlife biodiversity by shifting portions of existing plant communities from late seral to early seral.
- Where possible, salvage dead/dying forests stands from epidemic insect activity and treat remaining stands to increase their resilience to insect activity. Utilize resulting forest products where feasible.

Monitoring Activities to measure progress towards meeting Forest Health and Fuels Management objectives:

#### Pre- Implementation:

- Complete Forest Vegetation Information System (FORVIS) walkthrough survey to classify the existing vegetation type within a representative sample of each stand type. Walkthrough survey data includes canopy species composition and density, understory vegetation, fuel loading, and density and size class of snags and down wood.

- Establish GPS photo points within a representative sample of stand types, and document general stand conditions with photos. Documentation will reflect the particular objectives of individual units.
- Establish GPS photo point(s) showing approximate percent cover habitat type plants and any occurrence of insect/disease at the landscape-scale
- Prescribed Burn Units: Gather fuels data and establish vegetation transects and/or photo point(s) on representative sites. Photographic documentation should include pre and post-treatment photos from a designated point.
- If prescribed burns are conducted after May 15, migratory bird surveys will be completed prior to burning activities.

During Prescribed Burn Treatments:

- Fire behavior, fire weather, and smoke dispersion will be observed and documented throughout the ignition portion of each burn to make sure that these elements are within the prescription defined in the burn plan.

Post Implementation:

- Within two years after implementation on a given unit, re-visit stand to obtain the same data measurements described above and evaluate if the stand objectives were reached.
- Prescribed Burn Units:
  - Right after treatment: Photo points and/or measurements along each pre-treatment transect to determine if treatment objectives have been attained.
  - One to four years after treatment: Re-measure transects and/or take additional photos at the photo points to show vegetative response to the treatment and progress towards meeting objectives. Changes in use by big game, specifically elk, within the treatment areas may be measured by conducting pellet group transects prior to treatment and then annually for up to five years following treatment.

**Resource Concern # 1: Special Status Species**

The objectives for Special Status Species are:

- Maintain or enhance habitat for sensitive plant species while providing ample opportunity for reproduction and seedling establishment.
- Maintain or enhance habitat for sensitive wildlife and fish species while providing ample opportunity for reproduction and recruitment.

Monitor species activity in cooperation with MT FWP, and ensure that habitat requirements are met.

Sage grouse and pygmy rabbit habitat characterization monitoring is identified in Table 2 above. Sage brush habitat needs for both species are similar. Monitoring and inventory data collected for sage grouse has documented pygmy rabbits utilizing the same habitat in the DFO. Therefore, data collected for sage grouse can also be extrapolated for pygmy rabbits.

Monitor ferruginous hawk nests within the watershed to document occupancy and productivity. Sampling should occur on a 5-year basis following inventories in 2005 and 2006.

**Table 4. Site Specific Sensitive Plant Species Objectives**

<b>Allotment Name</b>	<b>Objective</b>	<b>Monitoring Methodologies</b>
Cedar Creek Shoshone Cove	Maintain or increase density, frequency and cover of bitterroot milkvetch.	Belt transect and/or Macro-plots Photo point(s)

### **Resource Concern # 2      Socioeconomics**

The objective for socioeconomics is:

- Continue to contribute to the local economy by providing an opportunity for sustainable uses on public land through livestock grazing, utilization of forest products, and recreational opportunities.

Trends in socioeconomics will not be monitored by the local BLM office.

### **Resource Concern # 3      Recreational Opportunities and Public Access**

The objectives for motorized access are:

- Implement the Dillon RMP Travel Management Plan.
- Maintain motorized wheeled vehicle access to those areas where it already exists, and improve access to public lands where opportunities are currently limited.
- Maintain opportunities for big game hunting, fishing, wildlife viewing, horseback riding, and other backcountry recreation.
- Reduce unauthorized motor vehicle use, especially during the hunting season.

Monitoring will consist of compliance checks to determine if closed roads show signs of use and hunting season compliance visits to monitor and enforce the travel management plan.

### **Critical Element:      Wilderness Characteristics**

The objectives for wilderness characteristics are:

- Maintain or improve the wilderness characteristics that were present at the time of the wilderness inventory (1979-80)
- Reduce occurrence and impacts of unauthorized motor vehicle use.

Planned monitoring will consist of compliance checks and continuation of existing monitoring. WSA monitoring forms will be completed, and photographic documentation will be used where applicable.

### **Critical Element:      Cultural Resources**

The goals and objectives for cultural resources in the watershed are to maintain the integrity of existing cultural resources; mitigate potential adverse impacts of any proposed range or habitat improvement projects through project redesign or

abandonment; and to record the presence and location of any previously unreported cultural and paleontological resources on public lands.

A review of the previously recorded cultural resources has determined that properties in six allotments have potential to be, affected by cattle grazing or trampling. Approximately 20% (n=8) of the 39 previously recorded cultural resources in the study area are eligible or potentially eligible for the National Register of Historic Places and should be revisited in order to determine if adverse impacts associated with grazing management are occurring.

### **Types of Data Collected**

Most established permanent vegetative and physical trend transects in the RRLW were read and data was updated during 2007. However, to adequately measure progress towards site specific objectives, additional studies will be established in key areas during 2008 and/or 2009. Baseline data will be gathered during or prior to 2009, as necessary to adequately measure progress towards meeting objectives. The baseline data will be considered the starting point from which to measure progress towards meeting objectives or effectiveness of management changes. Monitoring Methodology descriptions are available at the Dillon Field Office.

Key areas are defined as relatively small areas that reflect or have the capability to reflect the effectiveness of management of the resources of a larger area. Depending on management objectives, a key area may be a representative sample of a large stratum, pasture, allotment, or a particular management area. Key areas or monitoring sites should represent the high variability of riparian, upland and forest habitat types, patterns of use, and conditions of forest, rangeland or riparian health. Over the next several years the following data will be collected (See Table 5).

- Actual livestock and wildlife use. Actual use is the grazing use made on an area by all classes of forage consumers. This information is necessary to provide a correlation between utilization and trend data. Considered alone, actual use data are essentially meaningless. However, when considered in conjunction with climate and utilization data, this data is necessary to interpret trend data accurately.
- Annual monitoring/compliance, including utilization of upland forage, browse levels on willows and aspen, measurement of sedge stubble heights and measurement of stream bank alteration, where applicable. This monitoring will occur primarily at established key areas, but may occur in other areas as well. In areas where competition for resources may occur between livestock and big game, pre-livestock data may also be collected. This annual data will be used to help accurately interpret trend data.
- Local precipitation and temperature. This data is necessary to interpret trend data accurately.
- Long term trend. Trend data will be used to measure progress towards meeting objectives as described above.

Trend refers to the direction of change and indicates whether the forest, rangeland, riparian area or other resource is being maintained or is moving toward or away from the desired plant community or other specific management objectives. Trend studies are



important in the long term for determining the effectiveness of management actions toward meeting management objectives.

Trend data will be collected again in 2017 unless specified otherwise for specific objectives. The RRLW will be re-assessed or evaluated during the winter of 2017/2018. In this process, all monitoring data will be summarized, analyzed, interpreted, and evaluated to measure progress toward meeting objectives. Trend data gathered in 2017 will be compared to baseline and existing trend data. The measured change in the data will be used to measure progress toward meeting objectives, thereby evaluating management and making informed decisions regarding subsequent management (continuation or change). For example, if monitoring data shows that progress is being made toward established objectives, current management will be continued or modified slightly as warranted or allowed according to the data. However, if data shows a downward trend (change away from objectives) or does not show any progress toward meeting objectives by 2017, and it is determined that current livestock management is a significant factor in precluding progress toward meeting objectives, then management will be adjusted by implementing an alternate system, changing the season of use and/or reducing authorized AUMs. The level of adjustment will be determined by the degree of divergence from the objectives.

**Table 5. Planned Resource Monitoring Activities**

Type	Method	Responsibility	Frequency
Actual Use	Actual Use Reports submitted by permittees; Wildlife observation forms; Wildlife population monitoring in cooperation with the MFWP. Recreation user days	Range, Wildlife and Recreation Staffs	Annually;
Compliance/ Annual Monitoring	Utilization – Grazed/Ungrazed Method; Key Forage Plant method or Height/weight method	Range, Wildlife or Fisheries Biologist, Hydrologist, Recreation Staff, Law Enforcement Officer.	Annually and seasonally, as applicable
	Stubble height – Stubble Height Method		
	Bank alteration – Stream bank Alteration Methodology as defined by Idaho State Office BLM, 2000		
	Browse use – To be determined		
	Compliance checks to monitor and enforce Travel Management Plan		
	Compliance Checks, aerial and ground, in WSAs; photographic documentation. (Wilderness Monitoring Forms).	Recreation Staff	Annually and seasonally, as applicable
Climate	Precipitation data available from National Oceanic and Atmospheric Administration and other sources	Available from external sources	Annually
Habitat Characterization	Sage grouse telemetry study. Herbaceous understory measurements along established transect within nesting and early brood-rearing habitat.	Wildlife Staff	Annually, as resources allow.

Type	Method	Responsibility	Frequency
Trend (also see Tables 1 – 4 above)	<b>Biotic (vegetative)</b> <i>Quadrat Frequency</i> <i>Daubenmire</i> <i>Line Intercept</i> <i>Cover Board</i> <i>Woody Species Regeneration</i> <i>Greenline</i> <i>Macroplots/Belt Transects</i> <i>Fire Regime Condition Class (FRCC)</i> <i>Satellite Imagery (as applicable)</i>	Range, Wildlife or Fisheries Biologist, Botanist, Hydrologist, Forester, Fuels Specialist	Establish baseline by 2009 where needed. Trend data will be duplicated in <b>2017</b> and may be duplicated during additional years prior to 2016 as determined by need, priorities and available resources.
	<b>Physical</b> <i>Cross section</i> <i>Rosgens</i> <i>Cumulative width/depth ratio transects</i>		
Watershed Evaluation	Analysis, Interpretation, Evaluation and Recommendations	ID team	FY2016/2017

### Budget Requirements

This monitoring plan was prepared with the assumption that funding will remain at or near existing levels for the foreseeable future. In this light, it is anticipated that the bulk of the monitoring load will have to be borne by the existing range, wildlife, fisheries, forestry, fuels, hydrology, recreation, wilderness and cultural resource specialists along with a minimum of six seasonal employees (technicians) each field season for the duration of this plan.